

11-29-05

cgc

BATES & THORNBURG LLP



One North Wacker  
Suite 4400  
Chicago, Illinois 60606  
(312) 357-1313  
(312) 759-5646 Fax

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

*Group:*

*Confirmation No.:*

*Application No.:* 09/844,705

*Invention:* METHODS TO IDENTIFY SWINE  
GENETICALLY RESISTANT TO  
F.18 E.COLI ASSOCIATED  
DISEASES

*Applicant:* Bosworth et al.

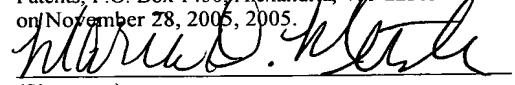
*Filed:* April 27, 2001

*Attorney*  
*Docket:* 21419-91512

*Examiner:*

**Certificate Under 37 CFR 1.8(a)**

I hereby certify that this correspondence is being  
deposited with the United States Postal Service with  
sufficient postage as Express Mail No. EV695556781  
US in an envelope addressed to Commissioner for  
Patents, P.O. Box 1450, Alexandria, VA 22313-1450  
on November 28, 2005, 2005.

  
(Signature)

Maria D. Meister \_\_\_\_\_  
(Printed Name)

*Certificate  
NOV 30 2005  
of Correction*

**REQUEST FOR CERTIFICATE OF CORRECTION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Please issue a Certificate of Correction for **U.S. Pat. No. 6,965,022**, based on the above-referenced application, to correct the errors listed on the accompanying PTO Form SB44. This request is being made pursuant to 35 U.S.C. § 254, because the error relates to an omission on behalf of the U.S. PTO.

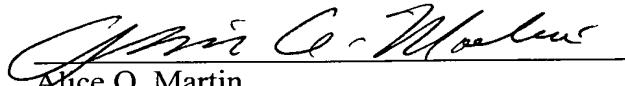
Copies of the Assignments are also enclosed.

*NOV 30 2005*

No fees are believed due at this time, however, please charge any deficiencies or credit any overpayments to deposit account number 12-0913 with reference to our attorney docket number (21419-91512).

Respectfully submitted,

BARNES & THORNBURG LLP



Alice O. Martin  
Attorney Registration No. 35,601

November 28, 2005

Barnes & Thornburg  
P.O. Box 2786  
Chicago, Illinois 60690-2786  
November 28, 2005

# UNITED STATES PATENT AND TRADEMARK OFFICE

## CERTIFICATE OF CORRECTION

PATENT NO. : 6,965,022 B2

Page 1 of 1

APPLICATION NO. : 09/844,705

ISSUE DATE : November 15, 2005

INVENTOR(S) : Bosworth et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**Please amend the Patent Application to add an assignee which was omitted from the Patent, a PTO error:**

**The United States of America as Represented by the Secretary of Agriculture, Washington, D.C.;**

**Biotechnology Research and Development Corp., 1815 N. University, Peoria, IL 61604;**

**Swiss Federal Institute of Technology, Ramistrasse 101, ETH-Zentrum, CH-8092 Zurich Switzerland**

MAILING ADDRESS OF SENDER (Please do not use customer number)

**Alice O. Martin, Registration No. 35,601  
Barnes & Thornburg LLP  
One North Wacker Dr., Suite 4400, Chicago, IL 60606**

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

NOV 30 2005

## PART 3 - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail

Mail Stop ISSUE FEE

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

or Fax: (703) 746-4000

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

25644 7590 01/06/2005

BARNES & THORNBURG  
P.O. BOX 2786  
CHICAGO, IL 60690-2786

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Express  
Certificate of Mailing or Transmission  
EV 607230543

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

*Alice O. Martin* (Depositor's name)  
*Alice O. Martin* (Signature)  
*01/08/05* (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,705	07/26/2001	Brad T. Bosworth	21419/91512	2430

TITLE OF INVENTION: METHODS TO IDENTIFY SWINE GENETICALLY RESISTANT TO F18 E. COLI ASSOCIATED DISEASES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$1700	04/06/2005

EXAMINER	ART UNIT	CLASS-SUBCLASS
WOITACH, JOSEPH T	1632	536-023500

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Barnes &amp; Thornburg

2 Alice O. Martin

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

20250

(A) NAME OF ASSIGNEE  
The United States of America as Represented by the Secretary of Agriculture, Washington, D.C.  
Biotechnology Research and Development Corp., 1815 N. University, Peoria, IL 61604  
Swiss Federal Institute of Technology, Ramistrasse 101, ETH-Zentrum, CH-8092 Zurich Switzerland

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are enclosed:

Issue Fee  
 Publication Fee (No small entity discount permitted)  
 Advance Order - # of Copies 10

4b. Payment of Fee(s):

A check in the amount of the fee(s) is enclosed.  
 Payment by credit card. Form PTO-2038 is attached.  
 The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number 12-0913 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.  b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

*Alice O. Martin*

Date February 8, 2005

Typed or printed name Alice O. Martin

Registration No. 35,601

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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CHICAGO, IL 60690-2786

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BARNES &amp; THORNBURG

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United States Patent and Trademark Office  
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P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

## NOTICE OF ALLOWANCE AND FEE(S) DUE

EXAMINER

WOITACH, JOSEPH T

ART UNIT

PAPER NUMBER

1632

DATE MAILED: 01/06/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,705	07/26/2001 07/26/2001	Brad T. Bosworth	21419/91512	2430

TITLE OF INVENTION: METHODS TO IDENTIFY SWINE GENETICALLY RESISTANT TO F18 E. COLI ASSOCIATED DISEASES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$1700	04/06/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

DOCKETED  
FOR: NOK  
Due Date: 01/16/05  
Final Date: 01/16/05

NOV 30 2005

**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail**

**Mail Stop ISSUE FEE**

Commissioner for Patents

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Alexandria, Virginia 22313-1450

or **Fax** (703) 746-4000

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23644

7590

01/06/2005

**BARNES & THORNBURG**  
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CHICAGO, IL 60690-2786

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,705	07/26/2001 04/27/2001	Brad T. Bosworth	21419/91512	2430

TITLE OF INVENTION: METHODS TO IDENTIFY SWINE GENETICALLY RESISTANT TO F18 E. COLI ASSOCIATED DISEASES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$1700	04/06/2005
EXAMINER	ART UNIT	CLASS-SUBCLASS			
WOITACH, JOSEPH T	1632	536-023500			

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

"Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is 2 \_\_\_\_\_

3 \_\_\_\_\_ listed, no name will be printed.

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are enclosed:

Issue Fee

4b. Payment of Fee(s):

A check in the amount of the fee(s) is enclosed.

Publication Fee (No small entity discount permitted)

Payment by credit card. Form PTO-2038 is attached.

Advance Order - # of Copies \_\_\_\_\_

The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above. NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

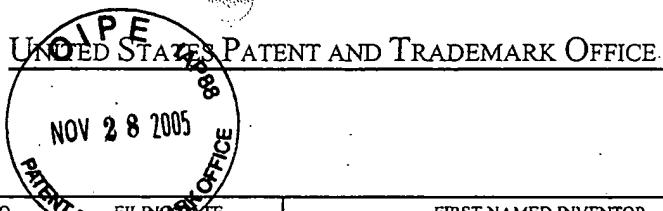
Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,705	07/26/2001	Brad T. Bosworth	21419/91512	2430
23644	7590	01/06/2005	EXAMINER	
BARNES & THORNBURG P.O. BOX 2786 CHICAGO, IL 60690-2786			WOITACH, JOSEPH T	
		ART UNIT	PAPER NUMBER	
		1632		

DATE MAILED: 01/06/2005

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

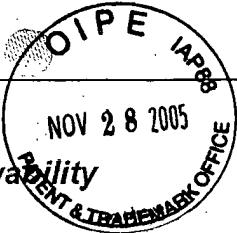
The Patent Term Adjustment to date is 450 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 450 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571) 272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

NOV 3 0 2005



**Notice of Allowability**

Application No.	Applicant(s)
09/844,705	BOSWORTH ET AL.
Examiner	Art Unit
Joseph T. Woitach	1632

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address—

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to 9/23/2004.
2.  The allowed claim(s) is/are 3,5 and 6.
3.  The drawings filed on 27 April 2001 are accepted by the Examiner.
4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of
   
Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_.
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

### DETAILED ACTION

This application filed April 27, 2001 is a continuation of 09/443,766 filed November 19, 1999, now US Patent 6,596,923 (issued July 22, 2003) which claims benefit under 35 U.S.C. 120 to PCT/US98/10318, filed May 20, 1998, which claims benefit to provisional application 60/047,181, filed May 20, 1997.

Applicants' after final amendment filed September 23, 2004, has been received and entered. Claims 1, 2 and 4 have been canceled. Claims 3 and 5 have been amended. Claims 3, 5 and 6 are pending and currently under examination.

#### *Reasons for Allowance*

The following is an examiner's statement of reasons for allowance:

The terminal disclaimer filed June 23, 2004, has been received and accepted. The filing of the disclaimer has obviated the obvious double patenting rejection over 6,596,923. With respect to the second double patenting rejection, Applicants' previous arguments and the amendments to the claims has sufficiently distinguished the instant claimed method of identifying and breeding swine resistant to toxigenic *E. coli* from the methods of increasing weight gain as claimed in 6,355,859.

As indicated in the previous office actions the claims are free of the art of record because while the art indicates that cell surface receptors on intestinal cells are the target molecules for *E. coli* colonization, and that the glycosylation on said receptors may be important in determining the ability of a particular *E. coli* to colonize the intestine, the art fails to specifically teach that an

Nov 30 2005

adenine at position 307 of the open reading frame of alpha (1,2) fucosyltransferase (FUT1) (SEQ ID NO: 12) can be correlated with resistance to *E. coli* strain F18 and possibly with the subsequent associated diseases. The amendment to the claims and Applicants' arguments have been fully considered and are found sufficient to address the remaining rejections of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Woitach whose telephone number is (571) 272-0739.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached at (571) 272-0734.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Dianiece Jacobs whose telephone number is (571) 272-0532.

Joseph T. Woitach

JOSEPH T. WOITACH  
PATENT EXAMINER

*Joe Woitach*  
AUG 16 1992

NOV 30 1992



inventor: Brad Bosworth and Peter Vögeli  
Title: METHODS TO IDENTIFY SWINE  
GENETICALLY RESISTANT TO F18 E. COLI  
ASSOCIATED DISEASES  
Filing Date: April 27, 2001  
Atty Docket No. 21419/91512

The following was sent to the United States Patent and  
Trademark Office

- Utility Patent Application Transmittal Form
- Specification (22 pages).
- Copy of Declaration from Patent App. No.  
09/443,776

Mailed via Express Mail on April 27, 2001

  
Alice O. Martin  
Reg. No. 35,601

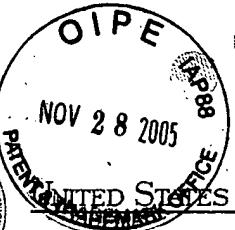
EL576314317US

11002 U.S. PTO  
09/844705  
  
04/27/01

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 <p><b>POST OFFICE TO ADDRESSEE</b></p> <p><b>ORIGIN (POSTAL USE ONLY)</b></p> <p>PO ZIP Code: 03697</p> <p>Day of Polarity: <input checked="" type="checkbox"/> First <input type="checkbox"/> Second</p> <p>Flat Rate Envelope <input type="checkbox"/></p> <p>Date in Month: 07 Date in Year: 97</p> <p>AM PM</p> <p>No. of Days: 1</p> <p>Time in Hours: 12</p> <p>Weight: 0.03 lbs.</p> <p>No Delivery: <input type="checkbox"/> <input checked="" type="checkbox"/> Acceptance Clerk Initials: <i>KJ</i></p> <p>Custom Mail Corporate Acct. No. <i>X607333</i></p> <p>Federal Agency Acct. No. or State Service Acct. No. <i>12119/01572</i></p>		<p>Label 11-7 July 1997</p> <p><b>Customer Copy</b></p> <p><b>EL 57631431705</b></p> <p><b>SEE REVERSE SIDE FOR SERVICE GUARANTEE AND LIMITS ON INSURANCE COVERAGE</b></p> <table border="1"> <tr> <td>Military <input type="checkbox"/></td> <td>Postage <input type="checkbox"/></td> </tr> <tr> <td>2nd Day <input type="checkbox"/></td> <td>Return Receipt Fee <input type="checkbox"/></td> </tr> <tr> <td>3rd Day <input type="checkbox"/></td> <td>Int'l Alpha Country Code: <input type="checkbox"/></td> </tr> <tr> <td>4th Day <input type="checkbox"/></td> <td>COD Fee <input type="checkbox"/></td> </tr> <tr> <td>5th Day <input type="checkbox"/></td> <td>Insurance Fee <input type="checkbox"/></td> </tr> <tr> <td>6th Day <input type="checkbox"/></td> <td>Total Postage <input type="checkbox"/></td> </tr> <tr> <td>7th Day <input type="checkbox"/></td> <td>Delivery <input type="checkbox"/></td> </tr> <tr> <td>8th Day <input type="checkbox"/></td> <td>NO DELIVERY <input type="checkbox"/></td> </tr> </table> <p><b>WAIVER OF SIGNATURE (Domestic Only)</b> I wish delivery to be made without delivering the article to me if I wish to have the article delivered to a place of business or to a place of residence other than my home. I also wish to have the article delivered to a place of business or to a place of residence other than my home if I do not employ a signature constituting a valid delivery. I also wish to have the article delivered to a place of business or to a place of residence other than my home if I do not employ a signature constituting a valid delivery.</p>	Military <input type="checkbox"/>	Postage <input type="checkbox"/>	2nd Day <input type="checkbox"/>	Return Receipt Fee <input type="checkbox"/>	3rd Day <input type="checkbox"/>	Int'l Alpha Country Code: <input type="checkbox"/>	4th Day <input type="checkbox"/>	COD Fee <input type="checkbox"/>	5th Day <input type="checkbox"/>	Insurance Fee <input type="checkbox"/>	6th Day <input type="checkbox"/>	Total Postage <input type="checkbox"/>	7th Day <input type="checkbox"/>	Delivery <input type="checkbox"/>	8th Day <input type="checkbox"/>	NO DELIVERY <input type="checkbox"/>
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<p><b>FROM: PLEASE PRINT</b></p> <p>PHONE <i>312 357 1313</i></p> <p><b>TO: PLEASE PRINT</b></p> <p>PHONE <i>312 357 1313</i></p> <p><b>ASSISTANT COMMISSIONER FOR PATENTS</b></p> <p><b>WASHINGTON</b></p> <p><b>DC 20231-9999</b></p> <p><b>PRESS HARD.</b> You are making 3 copies.</p>		<p>333</p> <p>F92</p> <p>F92</p> <p>5</p> <p>1. L. 60603-1002</p> <p>2. L. 60603-1002</p> <p>3. L. 60603-1002</p> <p>4. L. 60603-1002</p> <p>5. L. 60603-1002</p> <p>6. L. 60603-1002</p> <p>7. L. 60603-1002</p> <p>8. L. 60603-1002</p> <p>9. L. 60603-1002</p> <p>10. L. 60603-1002</p> <p>11. L. 60603-1002</p> <p>12. L. 60603-1002</p> <p>13. L. 60603-1002</p> <p>14. L. 60603-1002</p> <p>15. L. 60603-1002</p> <p>16. L. 60603-1002</p> <p>17. L. 60603-1002</p> <p>18. L. 60603-1002</p> <p>19. L. 60603-1002</p> <p>20. L. 60603-1002</p> <p>21. L. 60603-1002</p> <p>22. L. 60603-1002</p> <p>23. L. 60603-1002</p> <p>24. L. 60603-1002</p> <p>25. L. 60603-1002</p> <p>26. L. 60603-1002</p> <p>27. L. 60603-1002</p> <p>28. L. 60603-1002</p> <p>29. L. 60603-1002</p> <p>30. L. 60603-1002</p> <p>31. L. 60603-1002</p> <p>32. L. 60603-1002</p> <p>33. L. 60603-1002</p> <p>34. L. 60603-1002</p> <p>35. L. 60603-1002</p> <p>36. L. 60603-1002</p> <p>37. L. 60603-1002</p> <p>38. L. 60603-1002</p> <p>39. L. 60603-1002</p> <p>40. L. 60603-1002</p> <p>41. L. 60603-1002</p> <p>42. L. 60603-1002</p> <p>43. L. 60603-1002</p> <p>44. L. 60603-1002</p> <p>45. L. 60603-1002</p> <p>46. L. 60603-1002</p> <p>47. L. 60603-1002</p> <p>48. L. 60603-1002</p> <p>49. L. 60603-1002</p> <p>50. L. 60603-1002</p> <p>51. L. 60603-1002</p> <p>52. L. 60603-1002</p> <p>53. L. 60603-1002</p> <p>54. L. 60603-1002</p> <p>55. L. 60603-1002</p> <p>56. L. 60603-1002</p> <p>57. L. 60603-1002</p> <p>58. L. 60603-1002</p> <p>59. L. 60603-1002</p> <p>60. L. 60603-1002</p> <p>61. L. 60603-1002</p> <p>62. L. 60603-1002</p> <p>63. L. 60603-1002</p> <p>64. L. 60603-1002</p> <p>65. L. 60603-1002</p> <p>66. L. 60603-1002</p> <p>67. L. 60603-1002</p> <p>68. L. 60603-1002</p> <p>69. L. 60603-1002</p> <p>70. L. 60603-1002</p> <p>71. L. 60603-1002</p> <p>72. L. 60603-1002</p> <p>73. L. 60603-1002</p> <p>74. L. 60603-1002</p> <p>75. L. 60603-1002</p> <p>76. L. 60603-1002</p> <p>77. L. 60603-1002</p> <p>78. L. 60603-1002</p> <p>79. L. 60603-1002</p> <p>80. L. 60603-1002</p> <p>81. L. 60603-1002</p> <p>82. L. 60603-1002</p> <p>83. L. 60603-1002</p> <p>84. L. 60603-1002</p> <p>85. L. 60603-1002</p> <p>86. L. 60603-1002</p> <p>87. L. 60603-1002</p> <p>88. L. 60603-1002</p> <p>89. L. 60603-1002</p> <p>90. L. 60603-1002</p> <p>91. L. 60603-1002</p> <p>92. L. 60603-1002</p> <p>93. L. 60603-1002</p> <p>94. L. 60603-1002</p> <p>95. L. 60603-1002</p> <p>96. L. 60603-1002</p> <p>97. L. 60603-1002</p> <p>98. L. 60603-1002</p> <p>99. L. 60603-1002</p> <p>100. L. 60603-1002</p>																



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6/25/01

Page 1 of 4

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APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/844,705	04/27/2001	1633	0.00	21419/91512		2	1

CONFIRMATION NO. 2430

23644  
BARNES & THORNBURG  
2600 CHASE PLAZA  
10 LASALLE STREET  
CHICAGO, IL 60603

FILING RECEIPT

\*OC000000006186637\*

Date Mailed: 06/15/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

Applicant(s)

Brad T. Bosworth, Cambridge, UNITED KINGDOM;  
Peter Vogeli, Zurich, SWITZERLAND;

Domestic Priority data as claimed by applicant

THIS APPLICATION IS A DIV OF 09/443,766 11/19/1999  
WHICH CLAIMS BENEFIT OF 60/047,181 05/20/1997

Foreign Applications

PCT/US98/01318 05/20/1998

If Required, Foreign Filing License Granted 06/14/2001

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

Methods to identify swine genetically resistant to F18 E. coli associated diseases

NOV 30 2005  
30 2005

Preliminary Class

800

Data entry by : YOSEPH, LETEYESUS

Team : OIPE

Date: 06/15/2001

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Washington, DC 20231

NOV 30 2005

302005

ASSIGNMENT

WHEREAS, Brad T. Bosworth, hereinafter called the "Assignor", has made the invention described in the patent application entitled METHODS AND COMPOSITIONS TO IDENTIFY SWINE GENETICALLY RESISTANT TO F.18 E. COLI ASSOCIATED DISEASES for a full description of which reference is here made to US Utility Application 09/443,766 filed on November 19, 1999; U.S. Provisional Application 60/047,181 filed May 10, 1997 and PCT application PCT/US98/10318 filed on May 20, 1998.

WHEREAS, Biotechnology Research and Development Corporation, a corporation organized and existing under the laws of the State of Delaware, having a place of business at 1815 North University, Peoria, Illinois 61604 USA and U.S. of America as Represented by the Secretary of Agriculture, Washington D.C. 20250, USA, hereinafter called the "Co-Assignees", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of valuable and legally sufficient consideration, the receipt of which by the Assignor from the Co-Assignees is hereby acknowledged, the Assignor has sold, assigned, and transferred, and by these presents do sell, assign and transfer to the Co-Assignees, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents therefor in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest and to all continuations, divisions, renewals, and extensions of any of the patent applications and patents defined above; to have and to hold for the sole and exclusive use and benefit of the Co-Assignees, its successors and assigns, to the full end of the term or terms for all such patents.

The Assignor does hereby covenant and agree, for both the Assignor and the Assignor's legal representatives, that the Assignor will assist the Co-Assignees in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Co-Assignees may elect to make covering the invention identified above; in vesting in the Co-Assignees like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Co-Assignees any and all additional papers which may be requested by the Co-Assignees to carry out the terms of this Assignment.

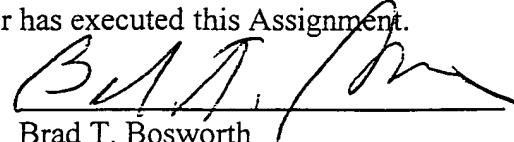
NOV 30 2006

30 2006

For United States applications, the Assistant Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Co-Assignees in accordance with the terms of this Assignment. The effective date of the assignment is May 10, 1997.

IN TESTIMONY WHEREOF, the Assignor has executed this Assignment.

DATED: May 18, 2000



Brad T. Bosworth

WITNESSED:

DATE: 18/2/2000

(SEAL)

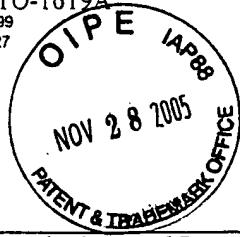


DR D.M. BALLANTINE.  
Registered medical  
practitioner (UK)  
62 Grantham Meadow  
Cambridge CB3 9JC.

Signed at Red Bull  
Barton Road,  
Cambridge  
(UK).

Serial No. 09/443,766

FORM PTO-1619A

Expires 06/30/99  
OMB 0651-0027

Certificate Under 37 CFR 1.8(a)

This correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to Assistant Commissioner for Patents, Washington, D.C. 20231 on February 22, 2000

Atty Docket No.

21419/90368

U.S. Department of Commerce

Patent and Trademark Office

PATENT

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Month Day YearName (line 1)  Brad T. Bosworth

2/18/00

Name (line 2) Execution Date  
Month Day Year**Second Party**Name (line 1) 

Month Day Year

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Serial No. 09/443,766

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21419/90368  
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## Patent Application Number(s)

## Patent Number(s)

 09/443,766 60/047,181






















NOV 9 2005

## Correspondent Name and Address

Area Code and Telephone Number **312-357-1313**Name **Alice O. Martin**Address (line 1) **Barnes & Thornburg**Address (line 2) **2600 Chase Plaza**Address (line 3) **10 South LaSalle Street**Address (line 4) **Chicago, Illinois 60603**

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09/443,766	60/047,181	

## Patent Number(s)


If this document is being filed together with a new Patent Application, enter the date the patent application was signed by the first named executing inventor.Month **Day** **Year**

## Patent Cooperation Treaty (PCT)

Enter PCT application number

PCT **US98/10318**PCT PCT only if a U.S. Application Number **PCT**  **PCT**  **PCT**   
has not been assigned.

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Enter the total number of properties involved.

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## Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41): \$ **40.00**Method of Payment:  
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Alice O. Martin

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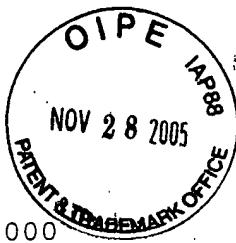
Alice O. Martin

Signature

February 22, 2000

Date

NOV 30 2000



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MAY 23, 2000

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BARNES & THORNBURG  
ALICE O. MARTIN  
2600 CHASE PLAZA  
10 SOUTH LASALLE STREET  
CHICAGO, IL 60603

JUN 06 2000

BARNES & THORNBURG

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RECORDATION DATE: 02/24/2000

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BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:  
VOGELI, PETER

DOC DATE: 01/25/2000

ASSIGNEE:  
SWISS FEDERAL INSTITUTE OF  
TECHNOLOGY  
RAMISTRASSE 101  
ETH-ZENTRUM CH-8092  
ZURICH, SWITZERLAND

SERIAL NUMBER: 09443766  
PATENT NUMBER:

FILING DATE: 11/19/1999  
ISSUE DATE:

SERIAL NUMBER: 60047181  
PATENT NUMBER:

FILING DATE: 05/20/1997  
ISSUE DATE:

SERIAL NUMBER:  
PATENT NUMBER:  
PCT NUMBER: US9810318

FILING DATE:  
ISSUE DATE:

NOV 30 2005

010645/0780 PAGE 2

STEVEN POST, EXAMINER  
ASSIGNMENT DIVISION  
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NOV 30 2003



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Patent and Trademark Office  
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MAY 23, 2000

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FROM: ASSIGNMENT DIVISION  
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PROPERTY NUMBER: 09443766

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TRADEMARK SERVICE FEES:	FEE CODE:
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LABOR CHARGES FOR SERVICES PER HOURS	484
OR FRACTION THEREOF	
UNSPECIFIED OTHER SERVICES	485

PATENT SERVICE FEES:

RECORDING EACH PATENT ASSIGNMENT, 581

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AGREEMENT, OTHER PAPER, PER PROPERTY LABOR CHARGES FOR SERVICES PER HOUR (\$30) OR FRACTION THEREOF	584
UNSPECIFIED OTHER SERVICES	585

NOV 30 2008

MAY 22 2000

Serial. No. 09/443,766

FORM PTO-1619A  
Expires 06/30/99  
OMB 0651-0027

## Certificate Under 37 CFR 1.8(a)

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on February 22, 2000

Atty Docket No. 21419/90368

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1/25/00Name (line 1)  Peter VögeliName (line 2) 

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MAY 30 2000

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Area Code and Telephone Number

312-357-1313

Name Alice O. MartinAddress (line 1) Barnes & ThornburgAddress (line 2) 2600 Chase PlazaAddress (line 3) 10 South LaSalle StreetAddress (line 4) Chicago, Illinois 60603

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## Patent Application Number(s)

09/443,766

60/047,181

## Patent Number(s)

If this document is being filed together with a new Patent Application, enter the date the patent application was signed by the first named executing inventor.Month  Day  Year 

## Patent Cooperation Treaty (PCT)

PCT US98/10318PCT PCT 

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Alice O. Martin

February 22, 2000

Name of Person Signing

Signature

Date

NOV 30 2000

## ASSIGNMENT

WHEREAS, Peter Vögeli, hereinafter called the "Assignor", has made the invention described in the patent application entitled METHODS AND COMPOSITIONS TO IDENTIFY SWINE GENETICALLY RESISTANT TO F.18 E. COLI ASSOCIATED DISEASES for a full description of which reference is here made to US Utility Application 09/443,766 filed on November 19, 1999; U.S. Provisional Application 60/047,181 filed May 10, 1997 and PCT application PCT/US98/10318 filed on May 20, 1998.

WHEREAS, Swiss Federal Institute of Technology, Ramistrasse 101, ETH-Zentrum, CH-8092 Zurich, Switzerland, hereinafter called the "Assignee", desires to acquire the entire right, title and interest in and to the invention and the patent application identified above, and all patents which may be obtained for said invention, as set forth below;

NOW, THEREFORE, in consideration of valuable and legally sufficient consideration, the receipt of which by the Assignor from the Assignee is hereby acknowledged, the Assignor has sold, assigned, and transferred, and by these presents do sell, assign and transfer to the Assignee, the entire right, title and interest for the United States in and to the invention and the patent application identified above, and any patents that may issue for said invention in the United States; together with the entire right, title and interest in and to said invention and all patent applications and patents therefor in all countries foreign to the United States, including the full right to claim for any such application all benefits and priority rights under any applicable convention; together with the entire right, title and interest and to all continuations, divisions, renewals, and extensions of any of the patent applications and patents defined above; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for all such patents.

The Assignor does hereby covenant and agree, for both the Assignor and the Assignor's legal representatives, that the Assignor will assist the Assignee in the prosecution of the patent application identified above; in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; in vesting in the Assignee like exclusive title in and to all such other patent applications and patents; and in the prosecution of any interference which may arise involving said invention, or any such patent application or patent; and that the Assignor will execute and deliver to the Assignee any and all additional papers which may be requested by the Assignee to carry out the terms of this Assignment.

NOV 30 2005

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Atty Docket No. 21419/90368

Serial No. 09/443,766

For United States applications, the Assistant Commissioner of Patents and Trademarks is hereby authorized and requested to issue patents to the Assignee in accordance with the terms of this Assignment. The effective date of the assignment is May 10, 1997.

IN TESTIMONY WHEREOF, the Assignor has executed this Assignment.

DATED: January 25, 2000

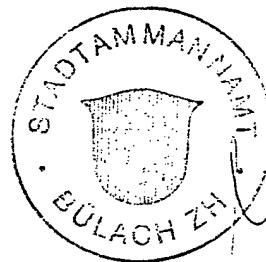
P. Vögeli  
Peter Vögeli

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DATE: \_\_\_\_\_

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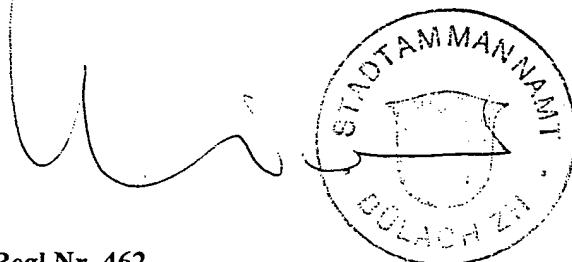
**Amtliche Beglaubigung**

Die Echtheit der vorstehenden, in meiner Gegenwart vollzogenen Unterschrift  
des durch Vorlegung des Passes sich ausweisenden  
Herr **Dr. Peter Vögeli**, geb. 04.08.1948, von Fehraltorf ZH und Herbligen BE,  
wohnhaft Adamengässchen 12, 8180 Bülach,  
wird hiermit amtlich bezeugt.

8180 Bülach, 25. Januar 2000

**Stadtammannamt Bülach**

Der Stadtammann:



Begl.Nr. 462

Gebühr: Fr. 20.--

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